On July 11th occurred the death of Professor Simon Newcomb, probably the most distinguished astronomer that America ever produced. Professor Newcomb was also recognized as a mathematician of the first rank and was honored the world over for his great scientific achievements. For a biography of Professor Newcomb, see THE AMERICAN MATHEMATICAL MONTHLY, Vol. I, pp. 253-256.   F.

The seventy-ninth annual meeting of the British Association for the Advancement of Science was held at Winnipeg, Canada, under the presidency of J. J. Thomson from August 25 to September 1, 1909. Fourteen hundred members and associates were in attendance, about five hundred coming from Europe and about one hundred and fifty from the United States. The papers devoted to pure mathematics were as follows:

E. H. Moore, Theorems in General Analysis; E. W. Hobson, F. R. S., On the Present Position of the Theory of Aggregates; G. A. Miller, Generalizations of the Icosahedral Group; G. A. Bliss, A New Proof of Weierstrass' Theorem; J. H. Grace, F. R. S., On Ideal Numbers; P. A. MacMahon, F. R. S., On a Correspondence in the Theory of the Partition of Numbers; W. H. Metzler, On a Continuant Expressed as the Product of Linear Factors; Ellery W. Davis, Imaginary Geometry of the Conic; Florian Cajori, On the Invention of the Slide Rule; J. W. Nicholson, The Asymptotic Expansion of Legendre Functions.   M.

BOOKS.

Coordinate Geometry. By Henry Burchard Fine and Henry Dallas Thompson. 8vo. Red Cloth Sides and Leather Back. viii+300 pages. New York: The Macmillan Co.

This book, which has the advantage of having been tested out in class room use for three years, will appeal strongly to all good teachers of Analytical Geometry because of the scholarly presentation of the subject. While it does not begin with the easiest possible concepts leading up to the subject, yet it is believed to be sufficiently elementary in its initial steps to enable the earnest student to easily master it. The treatment of higher plane curves is very brief, and it is to be regretted that brief historical notes concerning those that are treated have been omitted.

Excellent engravings of some of the second degree surfaces are given in the last pages of the book.   F.

An Elementary Treatment of the Theory of Spinning Tops and Gyroscopic Motion. By Harold Crabtree, M. A., Formerly Scholar of Pembroke College, Cambridge. Assistant Master at Charterhouse. With Illustrations. 8vo. Cloth, xii+140 pages. Price, $1.50. New York: Longmans, Green & Co.

The author's object in writing this interesting book is to bring within the range of the abler mathematicians of the public schools of England and of the First Year Undergraduates of the universities, a subject which has been previously considered too difficult for any but the more advanced students in mathematics.

The story was told that when Felix Klein gave his lecture on the Top at Princeton, a

lady told Professor Klein that her little boy (about ten years old) was greatly interested in tops, and she thought he would enjoy a lecture on the subject from so distinguished a scholar. The reporter failed to tell how the youngster entertained himself during the lecture, but if he did not have to be aroused from his slumbers by some vigorous shaking at its close he surely must have been a very unusual lad.

The book before us is not intended, it must be understood, for popular reading, nor for the amusement of boys interested in tops. It does, however, put the theory of tops in a mathematical dress easily recognized by any one having a good working knowledge of the Calculus, and a clear understanding of a few fundamental laws of Mechanics. The book is well written, and will be of interest to the inventive mind as well as to the mathematician.   F.

A Treatise on Differential Geometry. By Luther Pfahler Eisenhart, Preceptor in Mathematics, Princeton University. 8vo. Cloth. 474 pages. With Diagrams. Price, $4.50. Boston and Chicago: Ginn & Co.

It is the purpose of this book to introduce the student to the methods of differential geometry and to the theory of curves and surfaces developed thereby, to such an extent that he will be prepared to read the most extensive foreign treatises and journal articles. The reader is suppose to possess a knowledge of the calculus, elementary differential equations, and the elements of coordinate geometry of three dimensions. Hence the first half of the book may be used with seniors, and the remainder will constitute a full-year course for graduate students.

The method generally used is that of Gauss, common among German and Italian writers, but the kinematical method, frequently adopted in France, has been developed and applied where more feasible. This has been done not only because it furnishes the student with a powerful operator, but for the reason, also, that it develops geometrical thinking.

There are several hundred problems, some of which are direct applications of the accompanying sections, but many are theorems which might properly be established in a more extensive treatise. These have been inserted as an incentive to research and as preparation for larger problems.

The Integrals of Mechanics. By Oliver Clarence Lester, Professor of Physics in the University of Colorado; formerly Instructor in Physics in the Sheffield Scientific School, Yale University. 8vo. Cloth, 67 pages. With Diagrams. Price, 80 cents. Boston and Chicago: Ginn & Co.

The aim of this book is to furnish the conclusion to courses in the Integral Calculus such as are usually given in colleges and technical schools, and at the same time to provide for the beginning of Theoretical Mechanics, which usually follows the Calculus. The subject-matter is concerned entirely with such applications of the Calculus as the calculation of lengths, areas, volumes, densities, centers of mass, moments of inertia, and ellipsoids of inertia. These subjects are treated in great detail, all principles being fully illustrated by examples worked out in the text and by numerous problems set as exercises.

Since the ground covered is common to both the Integral Calculus and to Theoretical Mechanics, the author hopes in this way to save both time and energy; to save time by providing applications of the Calculus useful in Mechanics; to save energy by treating the purely mathematical parts of Mechanics entirely apart form the ideas of force and motion. This method avoids breaks in the continuity of the Mechanics course proper, and minimizes the liability of the student to such troublesome confusions as moment of inertia with the moment of a force, or center of gravity with the force of gravity.

Vector Analysis. An Introduction to Vector-Methods and Their Various Applications to Physics and Mathematics. By Joseph George Coffin, B. S., Ph. D., Instructor in Physics at the College of the City of New York. 12mo, Cloth. xix+248 pages, 69 figures. Price, $2.50 net. New York: John Wiley & Sons.

The first part of the book is devoted to a concise treatment of the fundamental principles of the subject, the remaining chapters, to the application of the analysis to the *beginnings* of mathematical physics, including geometry, mechanics, magnetism, electricity, heat and hydrodynamics. It was found necessary to omit many beautiful applications in elasticity, electron theory and other parts of physics in order to keep the size of the volume within bounds.

The student who takes up the later chapters, is supposed to be familiar, to a certain extent, with the subjects therein contained, and these chapters are intended to show the beginner how to translate and demonstrate the theorems into the new calculus. The writer therefore makes this his apology for a certain necessary lack of logical sequence in the treatment of the various subjects.

The treatment of alternating currents and allied subjects has been omitted, because in practically every modern book on the subject of notation of the special vector method employed, is fully explained in some part of it.

The notation adopted is that of Prof. Willard Gibbs, one of the too few great American physicists and mathematicians. The reasons leading to this choice are fully set forth in the Appendix. From *Preface.*

Complete Arithmetic. By George Wentworth and David Eugene Smith. 12mo. Cloth. Illustrated. vi+474 pages. Price, 60 cents. New York and Chicago: Ginn & Co.

The *Complete Arithmetic* is a text-book for grammar-school grades, thoroughly modern in spirit and material and arranged according to a topical plan.

The keynote of the method—present the reason briefly but clearly, then furnish such an amount of practice that the pupil cannot forget the principle—is that which has made the Wentworth texts the standard for a generation. Theory is reduced to a minimum and practice is abundantly provided in more than six thousand carefully graded problems and examples, all absolutely new.

The work conforms with modern business customes, and the needs of the future citizen are constantly kept in mind. The topics properly close with sets of exercises that relate to the vocational interests of our country, to the end that pupils may leave the *study* of arithmetic with the real *applications* of arithmetic clearly in mind.

The book contains all the topics ordinarily studied after a primary arithmetic has been completed, and omits such subjects as are too technical or have become obsolete.